

Prior to examination of the above-referenced application, please amend claims 1, 5, 8, 11, 12, 13 and 15, by writing such claims as follows:

IN THE CLAIMS:

1. (Amended) A method of transmitting data within a network space, comprising:  
illuminating the network space with a plurality of illumination sources powered by a common alternating current power ~~main~~ source; and  
applying a modulation signal to the alternating current power ~~main~~ source such that the illumination of each of the plurality of illumination sources is ~~simultaneously~~ modulated in response thereto.
2. (Original) The method of transmitting data according to claim 1, wherein at least a portion of said illumination sources have an associated ballast and wherein the modulation signal is induced upstream of each of said ballasts.
3. (Original) A system for data communication in a space illuminated by a plurality of illumination sources that are powered by a common power feed, comprising:  
a power modulation unit, said power modulation unit being interposed in said common power feed, upstream of each of the illumination sources, and inducing a change in the signal of said power feed in response to received data, said change effecting variations in illumination in the space provided by the illumination sources;

a data source computer, the data source computer being coupled to said power modulation unit and providing data thereto;

at least one optical receiver, said optical receiver being in optical communication with at least one of said illumination sources and being responsive to changes in incident light from said illumination sources resulting from said power modulation unit.

4. (Amended) The system for data communication in a space illuminated by a plurality of illumination sources according to claim 3, wherein the power modulation unit further comprises:

AC power ~~main~~ input terminals for connection to an external AC power main signal;

a transformer, said transformer having first and second primary terminals, a tapped primary terminal and first and second secondary terminals, the first primary terminal being electrically coupled to the first AC power ~~main~~ input terminal, the first and second secondary terminals being connectable to an external illumination circuit; and

a switching circuit, the switching circuit being interposed between the AC power ~~main~~ input terminals and the transformer, the switching circuit selectively connecting the AC power ~~main~~ terminals to either the first primary and tapped primary terminals or to the first primary and second primary terminals in response to a received external data signal.

-- 5. (Amended) The system for data communication in a space illuminated by a plurality of illumination sources according to claim 3 4 wherein the power modulation unit further comprises:

~~first and second AC power main input terminals for connection to an external AC power main signal;~~

~~————— a transformer, said transformer having first and second primary terminals, a tapped primary terminal and first and second secondary terminals, the first primary terminal being electrically coupled to the first AC power main input terminal;~~

~~————— a single pole, double throw switching circuit, the pole connection of the switching circuit being operatively coupled to the second AC power main input terminal, the switching circuit having a first throw connection electrically connected to the tapped primary terminal of said transformer, the switching circuit having a second throw terminal electrically connected to the second primary terminal of said transformer; the switching circuit having a control input terminal for receiving a signal to operate the switching circuit between the two switched states of the circuit;~~

an AC power main sampling circuit, the AC power main sampling circuit being responsive to an applied AC power main signal applied to the AC power main input terminals and generating a clock signal therefrom; and

a data buffer circuit, the data buffer circuit having a data input terminal, a data output terminal and a clock input terminal, the data output terminal being electrically connected to the control input terminal of the switching circuit, the clock input terminal being electrically coupled to the AC power main sampling circuit, and the data input terminal is connectable to an external data source to receive data to be transmitted by the modulation unit.

6. (Original) The system for data communication in a space illuminated by a plurality of illumination sources according to claim 3, wherein the optical receiver further comprises:

a liquid crystal display layer positioned to be visible by a user;  
a transfective layer positioned behind the liquid crystal display layer;  
a photovoltaic layer positioned behind the liquid crystal display layer, the photovoltaic layer receiving at least a portion of the light incident upon the liquid crystal display layer; and

a circuit layer positioned behind the photovoltaic layer, the circuit layer being electrically connected to the liquid crystal display layer and the photovoltaic layer.

7. (Amended) A power modulation unit which imposes a modulation signal on an AC power ~~main~~ signal, comprising:

AC power ~~main~~ input terminals for connection to an external AC power ~~main~~ signal;

a transformer coupled to the AC power ~~main~~ input terminals, said transformer having a first and second ratio of turns between a primary winding and a secondary winding;

a switching circuit operatively coupled to the transformer, the switching circuit being responsive to a signal to selectively switch between one of the first and second ratio of turns of the transformer;

modulated AC power output terminals coupled to the transformer and for external connection to a lighting load.

8. (Amended) A power modulation unit which imposes a modulation signal on an AC power ~~main~~ signal, comprising:

first and second AC power ~~main~~ input terminals for connection to an external AC power ~~main~~ signal;

a transformer, said transformer having first and second primary terminals, a tapped primary terminal and first and second secondary terminals, the first primary terminal being electrically coupled to the first AC power ~~main~~ input terminal;

~~a single pole, double throw switching circuit having a pole connection operatively coupled to the second AC power main input terminal, the switching circuit having a first throw connection electrically connected to the tapped primary terminal of said transformer, the switching circuit having a second throw terminal electrically connected to the second primary terminal of said transformer, the switching circuit having a control input terminal for receiving a signal to operate the switching circuit between the two switched states of the circuit;~~

a switching circuit, the switching circuit being interposed between the first and second AC power input terminals and the transformer, the switching circuit selectively connecting the AC power terminals to either the first primary and tapped primary terminals or to the first primary and second primary terminals in response to a received external data signal.

an AC power ~~main~~ sampling circuit, the AC power ~~main~~ sampling circuit being responsive to an applied AC power main signal applied to the AC power ~~main~~ input terminals and generating a clock signal therefrom; and

a data buffer circuit, the data buffer circuit having a data input terminal, a data output terminal and a clock input terminal, the data output terminal being electrically connected to the control input terminal of the switching circuit, the clock input terminal being electrically coupled to the AC power main sampling circuit , and the data input terminal is connectable to an external data source to receive data to be transmitted by the modulation unit.

9. (Original) The power modulation unit of claim 8, wherein the switching circuit further comprises first and second silicon controlled rectifiers (SCR), the first SCR being coupled between the second AC terminal and the tapped primary terminal, the second SCR being coupled between the second AC terminal and the second primary terminal, the gate of the first SCR is responsive to the data output signal from the data buffer circuit and the gate of the second SCR is responsive to the complement of the data output signal from the data buffer circuit.

10. (Original) The power modulation circuit of claim 9, wherein the AC sampling circuit comprises a zero crossing detector to generate said clock signal.

11. (Amended) The power modulation circuit of claim 9, wherein the AC sampling circuit generates said clock signal in response to the AC power ~~main~~ signal having a value at least equal to a predetermined threshold value.

12. (Amended) The power modulation circuit of claim 8, wherein the AC sampling circuit generates said clock signal in response to the AC power ~~main~~ signal having a value at least equal to a predetermined threshold value.

13. (Amended) A power modulation unit which imposes a modulation signal on an AC power ~~main~~ signal, comprising:

AC power ~~main~~ input terminals for connection to an external AC power main signal;

a transformer, said transformer having first and second primary terminals, a tapped primary terminal and first and second secondary terminals, the first primary terminal being electrically coupled to the first AC power ~~main~~ input terminal, the first and second secondary terminals being connectable to an external illumination circuit; and

a switching circuit, the switching circuit being interposed between the AC power ~~main~~ input terminals and the transformer, the switching circuit selectively connecting the AC power ~~main~~ terminals to either the first primary and tapped primary terminals or to the first primary and second primary terminals in response to a received external data signal.

14. (Original) An optical receiver, formed in a multilayer construction, comprising:

a liquid crystal display layer positioned to be visible to a user;

a transfective layer positioned behind the liquid crystal display layer;

a photovoltaic layer positioned behind the liquid crystal display layer; and

a circuit layer positioned behind the photovoltaic layer.

15. (Amended) The optical receiver of Claim 14, wherein the transfective layer reflects ~~less than~~ at least 20% of the incident light.

16. (Original) The optical receiver of Claim 14, wherein the transfective layer allows at least 50% of the incident light to pass through to the photovoltaic layer.

17. (Original) The optical receiver of Claim 14, further comprising a radio frequency transmitter.

18. (Original) A method of providing product information at the point of product display in an illuminated space comprising:

providing an electronic product tag at the point of product display of at least one product, the electronic product tag comprising:

an optical detector for receiving data from modulated incident light;

a processor operatively coupled to said optical receiver and demodulating the received data;

a display device operatively coupled to the processor for displaying the received data in the form of product information;

and

providing said modulated incident light to the optical receiver by providing a common modulating signal to the power supply of each of the illumination sources providing illumination to the space.

Please add the following new claims:

19. (New) A method of transmitting data within an illuminated area, comprising:

illuminating an area with a plurality of illumination sources powered by a common power source; and

applying a modulation signal to the common power source such that the total illumination within the illuminated area is modulated in response thereto.



20. (New) The method of transmitting data according to claim 19, wherein at least a portion of said illumination sources have an associated ballast and wherein the modulation signal is applied to the alternating current power signal upstream of said ballasts.
21. (New) The method of transmitting data according to claim 19, wherein the total illumination within the network space is modulated in a manner which is substantially imperceptible to the human eye.
22. (New) A method of transmitting data within an illuminated area, comprising:  
illuminating an area with a plurality of illumination sources, said plurality of illumination sources being powered by a power distribution network having at least one common feed point and each of the plurality of illumination sources are downstream of said common feed point; and  
applying a modulation signal to the power distribution network upstream of said common feed point such that the total illumination within the network space is modulated in response thereto.
23. (New) The method of transmitting data according to claim 22, wherein at least a portion of said illumination sources have an associated ballast downstream of said common feed point.
24. (New) The method of transmitting data according to claim 22, wherein at least a portion of said illumination sources are incandescent bulbs.

25. (New) The method of transmitting data according to claim 22, wherein the said illumination sources include at least one of fluorescent bulbs, mercury vapor bulbs and incandescent bulbs.
26. (New) The method of transmitting data according to claim 22, wherein the total illumination within the network space is modulated in a manner which is substantially imperceptible to the human eye.
27. (New) A method of transmitting data within an illuminated area, comprising:  
illuminating the illuminated area with a plurality of illumination sources powered by a common alternating current power signal; and  
applying a modulation signal to the alternating current power signal such that the total illumination within the network space is modulated in a manner which is substantially imperceptible to the human eye.
28. (New) The method of transmitting data according to claim 27, wherein at least a portion of said illumination sources have an associated ballast and wherein the modulation signal is applied to the alternating current power signal upstream of said ballasts.
29. (New) The method of transmitting data according to claim 27, wherein at least a portion of the illumination sources are incandescent bulbs.
30. (New) The method of transmitting data according to claim 27, wherein the said illumination sources include at least one of fluorescent bulbs, mercury vapor bulbs and incandescent bulbs.

31. (New) An optical receiver, formed in a multilayer construction, comprising:

a display layer positioned to be visible to a user, said display layer allowing at least a portion of incident light to pass therethrough;

a photovoltaic layer positioned behind the display layer; and

a circuit layer positioned behind the photovoltaic layer and electrically coupled thereto.

32. (New) The optical receiver of Claim 31, further comprising an acknowledgment transmitter operatively coupled to the circuit layer.

33. (New) The optical receiver of claim 31, wherein the display layer allows at least 50% of the incident light to pass to the photovoltaic layer.

34. (New) The optical receiver of Claim 31, wherein the display layer reflects at least 20% of the incident light.

35. (New) A method of providing product information to at least one point in an illuminated space comprising:

providing an electronic product tag within the illuminated space, the electronic product tag comprising:

an optical detector for receiving data from modulated incident light;

a processor operatively coupled to said optical receiver and  
demodulating the received data;

a display device operatively coupled to the processor for  
displaying the received data in the form of product information;

and

providing said modulated incident light to the optical detector by providing a  
common modulating signal to a common power source of at least two illumination sources  
providing illumination to the illuminated space.

36. (New) The method of providing product information according to claim 35 wherein the product tag further comprises a transmitter coupled to the processor, the method further comprising operating said transmitter to provide an acknowledgment signal when valid data is received by the product tag.

37. (New) The method of providing product information according to claim 35, wherein the product data is provided from information encoded on a bar code associated with the product.

38. (New) The method of providing product information according to claim 35, wherein the product data includes product price information.

39. (New) The method of providing product information according to claim 35, wherein the product data includes product UPC information.

40. (New) The method of providing product information according to claim 35, wherein the product data includes product identification information.

41. (New) The method of providing product information according to claim 18, wherein the product tag further comprises a transmitter coupled to the processor, the method further comprising operating said transmitter to provide an acknowledgment signal when valid product data is received by the product tag.

42. (New) The method of providing product information according to claim 18, wherein the product data includes product price information.

43. (New) The method of providing product information according to claim 18, wherein the product data includes product UPC information.

44. (New) The method of providing product information according to claim 18, wherein the product data includes product identification information.

45. (New) The method of providing product information according to claim 18, wherein the product data is provided from information encoded on a bar code associated with the product.

**REMARKS**

Original claims 1-18 remain pending. However, claims 1, 4, 5, 7, 8, 11, 12, 13, and 15 are amended by this amendment. In addition, claims 19-45 have been added by this amendment. A check in the amount of \$435.00 for the additional claims fee is enclosed.

The amendments to the claims and the addition of new claims is intended to more fully claim the subject matter set forth in the specification. It is intended that no subject matter is being surrendered by this amendment. It is respectfully submitted that all new claims and claim amendments are fully supported by the specification and that no new matter is being added by this amendment.

In view of the foregoing, entry of the amendments to claims 1, 4, 5, 7, 8, 11-13 and 15, entry of new claims 19-45 and favorable consideration and allowance of claims 1-45 are respectfully solicited.

Respectfully submitted,



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